

Self affine sets with a fibered tangent structure

Henna Koivusalo, University of York

We study local properties of fractal sets, in particular, their tangent sets. These are the limiting patterns in the Hausdorff metric when zooming in towards a point of the fractal, along a sequence of scales converging to 0. Tangent sets give a good description of the fine structure of the fractal set, and are well-understood for self similar sets. We investigate tangent sets of self affine sets in the plane. We prove that under some natural assumptions on the self affine set, the tangents sets have a fibered structure; that is, they are the product of a line segment with a Cantor set in a suitably chosen basis. This is in stark contrast to the self similar case, where the tangent sets have a self similar structure.

The work is joint with Antti Kaenmaki and Eino Rossi.